

# **EFFICACY OF VISCERAL MANIPULATION ON ABNORMAL PATTERN OF BREATHING IN ASTHMATIC PATIENTS**

## **1. INTORUCTION**

Asthma is a disease of diffuse airway inflammation caused by a variety of triggering stimuli resulting in partially or completely reversible bronchoconstriction. Symptoms and signs include dyspnea, chest tightness, cough, and wheezing. The diagnosis is based on history, physical examination, and pulmonary function tests. Treatment involves controlling triggering factors and drug therapy, most commonly with inhaled  $\beta_2$ -agonists and inhaled corticosteroids. Prognosis is good with treatment.

The prevalence of asthma has increased continuously since the 1970s, and it now affects an estimated 4 to 7% of people worldwide. More than 20 million people in the US are affected. Asthma is one of the most common chronic diseases of childhood, affecting more than 6 million children; it occurs more frequently in boys before puberty and in girls after puberty. It also occurs more frequently in blacks and Puerto Ricans. Despite its increasing prevalence, however, there has been a recent decline in mortality. About 4000 deaths occur from asthma annually in the US. However, the death rate is 5 times higher for blacks than for whites.

Osteopathy was lot to offer people with respiratory problems, helping children and adults cope with effects of asthma and other chronic respiratory disorders, including hyperventilation syndrome, centres around understanding how the chest wall, respiratory muscles and reflex relationships interact to compromise respiratory function, these disorders also impact on general musculoskeletal system efficiency and many biomechanical problems can trace there roots to restrictions and tension within the respiratory system and associated tissues,

The chest is an area often prone to trauma and stain, in various sports, in road traffic impacts, and as a result of poor posture at work.

## **1.1. OPERATIONAL DEFINITIONS**

### **BRONCHIAL ASTHMA**

Asthma is a medical condition that causes narrowing of the small airways in the lungs, typically, asthma patients develop wheezing and have increased mucous production in their lungs, asthma patients can have episodes of increased shortness of breath, often triggered by allergic reactions.

**- By Rod Brounhard**

## **VISCERAL MANIPULATION**

Visceral manipulation enhances motion and mobility of the visceral system by improving the structure and positions of the organ.

**- Barral Institute**

### **1.2. NEED FOR THE STUDY**

The overall burden of asthma in India estimated in a rate of 60% to 70%. In moderate to severe level of asthma, disease severity significantly impairs the quality of life. Asthma in adult subjects recognized to be poor quality of life.

So far the most burdening condition it can be treated by wide variety of interventions like bronchodilator therapy, diaphragmatic breathing exercises, etc, here we concern about treatment with visceral manipulation.

### **1.3. OBJECTIVES OF THE STUDY**

- To evaluate the effectiveness of visceral manipulation in asthmatics patients
- To find out whether the pattern of breathing will improve in asthmatic patients with manipulation technique

### **1.4. HYPOTHESIS**

#### **NULL HYPOTHESIS**

There is no significant difference when visceral manipulation given to asthmatic patients.

## **ALTERNATE HYPOTHESIS**

There is a significant difference when visceral manipulation given to asthmatic patient.

## **CHAPTER - 2**

### **REVIEW OF LITERATURE**

**Anthony Rosner, PhD.**, hondrans' recently published systematic review of randomized clinical trails addressed to manual therapy represents a sincere effort to summarize those investigation in what is commonly regarded as the gold standard of clinical research. That said, however, one has to remain particularly vigilant against accepting randomized clinical trials at face value, particularly in those instances involving physical interventions, in which the complete blinding of practitioners.

**J can Chiroper Assoc. 2010 (Mar); 54(1) : 24-32** ~ Results of the eight retrieved studies indicated that chiropractic care objective improvements in subjective measures and, to a lesser degree that some measures, none of which were statistically significant. It is evident that some asthmatic patients may benefit from this treatment approach; however, at this time, the evidence suggests chiropractic care should be used as an adjunct, not a replacement, to traditional medical therapy.

**Clinical Chiropractic 2005 (Sep): 8(3) 140-144** This article presents three cases where patients, being treated by conventional pharmacological means, had chiropractic manipulation administered to the upper thoracic spine twice a week for a period of 6 weeks. Objective measurements were collected using a peak flow meter and subjective data using an asthma specific questionnaire. All three cases resulted in increased subjective and objective parameters and suggest the need for larger studies with appropriate methodology.

**Today's Chiropractic 2000 (Nov)** Over a seven-year period, 47 cases of asthma were managed in an outpatient setting. Every case was followed for a minimum of two years to observe effectiveness of care. The study group comprised 28 males and 19 females, ranging from 7 to 42 years of age.

**Chiro : The J Chiro Res and Clinical Invest 1992; 8(2) : 40-42** This is a literature review of the effects of manipulative therapy as alternative treatment for asthma. Subjective studies show manipulation of the spine relieves the patients' symptoms. However, objective findings have yet to be compiled using respiratory indices. We recommend an extensive study be performed to determine the effects of manipulation on bronchial asthma.

**Killinger LZ Palmer Research Journal 1995: 2(3): 74-7;** This is the case report of an 18 year old subject with a two year history of asthma and monitored for a five year period. The result was marked improvement in the subject's health status. The greatest improvements were reported in the weeks following the chiropractic adjustments.

**Cessna. R. American Chiropractor April 1989; 48; 48-50** Discusses chiropractic success with asthmatics patient.

**Miller WD. In : Glodstein M, Ed. The Research Status of Spinal Manipulative Therapy. Bethesda: Dept. HEW. 197:295-301:** Patients with asthma were treated with osteopathic manipulation. 92% of the patients stated they were able to walk greater distances, had fewer colds, experienced less coughing, and had less dyspnea than before treatment. 95% of patients with bronchial asthma said they benefited from chiropractic care.

**Monti R.** Digest of Chiropractic Economics Sep-Oct 1991;48-51. They described the pathophysiology of asthma and the author's chiropractic results.

**Jamison J et.al J Aust Chiro Assoc., 16(4): 137-143, 1986:** In this study of 15 patients under chiropractic care, six patients reduced their medication and one stopped them entirely. All patients reported satisfaction with their chiropractic care and also the respiratory function appeared to be unaffected by chiropractic adjustments.

**Nilssen N. Christiansen B.J Aust Chirop Assoc. 1988: 18 :85-7** In this study of 79 subjects, those most likely to report the best benefit had less severe asthma, we younger and responded within one month.

**Dennis D, Gloden D, JMPT, Vol, 8 No.2 July. 1992:** Subjective studies show that manipulation of the spine relieves the patients' symptoms. However, object findings have to be complied using respiratory indices.

**Dr. Koren's comment:** These conclusions appear at variance with over a hundred years of clinical observation of chiropractic's effectiveness with asthmatics.

**Nilelsen NH, Bronfort G, Bendix T et al Clinical and Experimental Allergy 1995 Jan; 25 (1): 80-88 :** This blinded, randomized study of 31 patients aged 18-44 who are all on bronchodilators and/or inhaled steroids was conducted at the National University Hospital's Out-patient Clinic in Copenhagen, Denmark. They received either sham or real manipulations. Interestingly, non-specific Bronchial hyper Reactivity (n-BR) improved by 36% and patient rated asthma severity decreased by 34% in both groups.

**J AM Osteopath Assoc 1996 : (7) Jul : 403-409:** The emergency department (ED) setting offers osteopathic physicians multiple opportunities to provide osteopathic manipulative treatment (OMT) as either the primary therapy or as an adjunct to the intervention. In doing so, osteopathic physicians can decrease or



eliminate the morbidity and symptoms associated with protracted dysfunction.

Low back pain, chest pain, torticollis, asthma, and sinusitis are some of the illnesses in which OMT should be implemented as part of the management plan.

## **CHAPTER – III**

### **METHODOLOGY**

#### **MATERIALS AND METHODOLOGY**

##### **3.1. MATERIALS**

- Manipulation couch
- Pillows
- Chair
- Foot stool
- Assessment chart

#### **METHODOLOGY**

##### **3.2.A. STUDY DESIGN**

A quasi experimental design was conducted by using convenience sampling technique.

##### **3.2. B. STUDY SETTING**

The study was conducted at

- Government district head quarters Hospital, Erode
- OPD- Nandha College of Physiotherapy
- OPD - Chenkumar Tex, Chennimalai
- Sri Vinayaga Physio Clinic, Chennimalai

### **3.2.C. Sampling**

The subjects who were selected from those patients referred to physical therapy and diagnosed as asthma.

### **3.2.D. SAMPLING SIZE**

Maximum of 20 subjects were selected and then assigned to the study

### **3.2.E. CRITERIA FOR SELECTION OF SAMPLES**

#### **INCLUSION CRITERIA**

- Both male and female patients
- Age group 15 to 40
- Asthmatic patients in erode and chennimalai
- Based on assessment and diagnosed as mild to severe asthma

#### **EXCLUSION CRITERIA**

- Patients with cardio pulmonary pathology like cor pulmonale, LVH
- Subjects with infective lung disease like TB
- Subjects diagnosed as other obstructive lung disease like bronchiectasis
- Patients with neurological and orthopedic problems
- Patients with visual and auditory disorder
- Pregnancy
- Pace maker

### **3.3. STUDY DURATION**

The study was carried out for a period of 6 weeks.

### **3.4. PARAMETERS**

#### **MODIFIED BORG DYSNOEA SCALE**

#### **MEDICAL RESEARCH COUNCIL DYSNOEA SCALE**

### **PROCEDURE**

20 patients with evidence of significant asthma was recruited for the study with consideration of inclusion and exclusion criteria.

Before starting the treatment general cardio respiratory assessment was taken all the patients. In addition modified borg dysnoea scale and MRC dysnoea scale were also measured for all the patients, instructions were given to the patients about the treatment program, A regular periodical assessment was taken for all subject at every weekend and after completion of 6 weeks final post treatment and both scale were measured and documented.

## **TECHNIQUE OF MANIPULATION**

### **1. BRONCHI & PULMONARY VESSELS**

**Position of patients** : Supine lying position

**Technique** : The hand is placed with the palms contacting the inferior angles of the scapulae, just posterior to the mid-axillary lines. The left hand should be very slightly higher than the right, as the left bronchus has a slightly more oblique orientation than the right, due to the placement of the heart. Their contact is particularly good for functional/fascial unwinding releases along the bronchi and between the two lower lobes. It is also a very good contact for working with the motility of the lungs. Often the bronchi exhibit a spiral torsion running along their length. They also often feel contracted along their length. Felling into these patterns and allowing lateral expansion can be very effective in restoring normal bronchial compliance. This technique includes bilateral posterolateral contact of the lower lobes of the lungs, to evaluate all the lungs and the bronchi.

## **2. UPPER LOBE**

Position of Patient : Sitting

Technique : There are several optional to test out the lung in this position. One is to use a local 'listening' approach; another is to feel for general facial and connective tissue tensions within the lung tissue itself. Often is asthmatic cases. The posterior hand used the thenar eminence for this technique, and it is placed such that the superior angle of the scapula is nestled right into the centre of the palm. This should bring the thenar eminence medial to the border of the scapula but just lateral to the transverse processes. As the vertebra should be avoided to ensure a good contact with the lung, the rest of the fingers can gently lie over the top of trapezius fibres. The fingers should not be held rigidly. The anterior hand is placed so that the palm and thenar eminence are covering those first three ribs. It is important to keep the anterior contact below the clavicle. Where the anterior are passes over the patient's shoulders, some additional support to the patient can be provided, by gently compressing the over lying arm against the shoulder girdle. The heel of the anterior hand should be lateral to the sternum, and be around the level of the chondrocostal articulation. Again, the fingers of the anterior hand should be relaxed and can rest over the pectoral tissues and anterior shoulder. The contact can be used to unwind and balance through the tissues, easing torsions and so reducing spasms, irritability and sensitization.

### **3. LOWER LOBE**

Position : Sitting

Technique : In this technique only that section which is above the level of the diaphragm is being tested / treated). The posterior hand should remain above the inferior angle of the scapula to ensure that the lower lobe above of the scapula to ensure that the lower lobe above the level of the diaphragm is being evaluated. The anterior hand is placed quite laterally, so that the palm is just lateral to the midclavicular line and is at the level of the seventh and eight ribs. This ensures that it contacts the anterior margin of the lower lobe of the lung.

If the hand contacts the chest below the level of the diaphragm, then the movement can pass through other organs such as the spleen or liver, as well as the sliver of lower lobe that passed down between the posterior diaphragm and the lower ribcage. The direction for mobilizing the lower lobe is slightly more oblique, compared to the direction for testing the upper lobe. The upper lobe is tested with the compression / movement occurring from back to front (from posterosuperiorly to anteroinferiorly). The lower lobe is tested with the compression/movement occurring from posterosupero-medial to anteroinfero-lateral.

## CHAPTER – IV

### DATA ANALYSIS AND INTERPRETATION

#### 4. DATA PRESENTATION AND ANALYSIS

The original data collected from 20 selected subjects, after 6 weeks treatment program the post treatment scores were noted, the pre and post treatment scores were manipulated and subjected to statistical analysis and the results were obtained.

##### 4.1. STATISTICAL TOOL

The data obtained are analysed using paired ‘ t’ test

The formula used for the test is

Formula; paired t – test

$$t = \frac{\bar{d}\sqrt{n}}{S}$$

$$S = \frac{\sqrt{\sum d^2 - \frac{(\sum d)^2}{n}}}{n - 1}$$

d = difference between the pre test vs post test

$\bar{d}$  = mean difference

n = total number of subjects

s = standard deviation

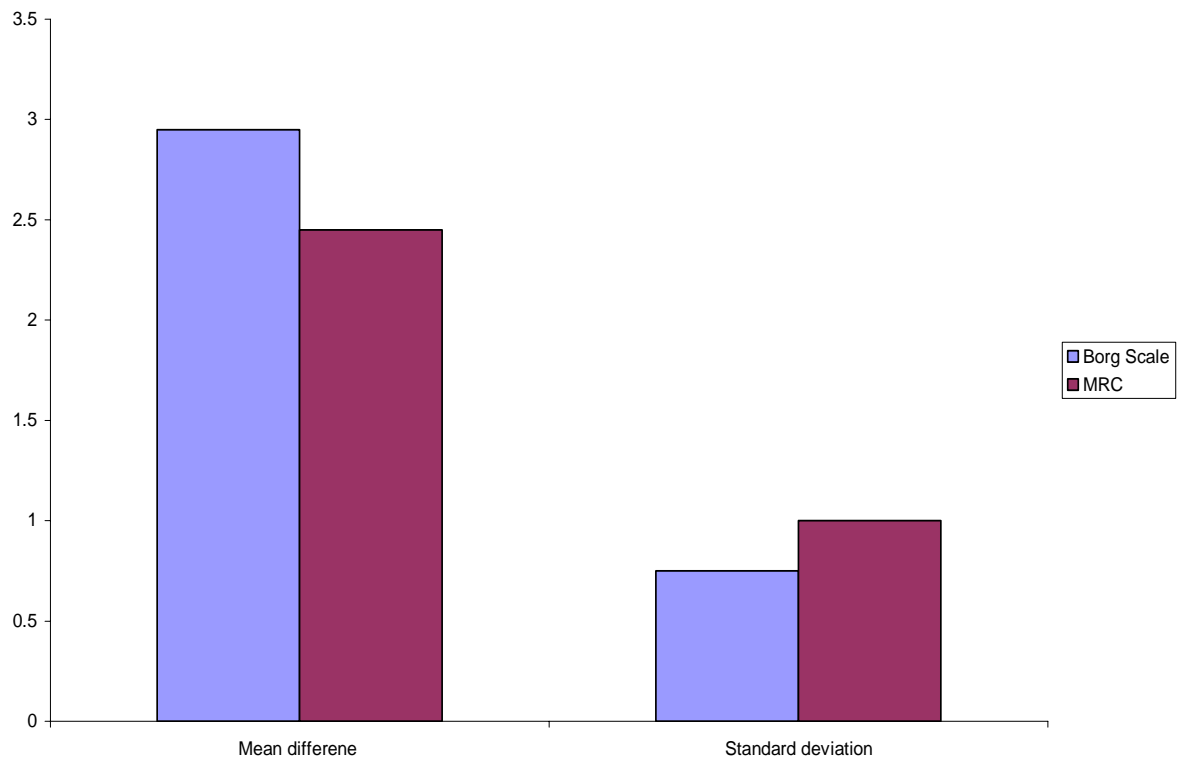


The results are interpreted based on the calculated paired 't' test values which is greater then the table values will mean that the variation is grater between the pre and post readings, with in the given degrees of freedom and level of significance it is determined.

#### 4.2. Mean and standard deviation values fro both tests

Test	Mean differences	Standard deviation
Borg scale 2	2.95	0.75
MRC	2.45	1

MEAN AND STANDARD DEVIATION VALUES

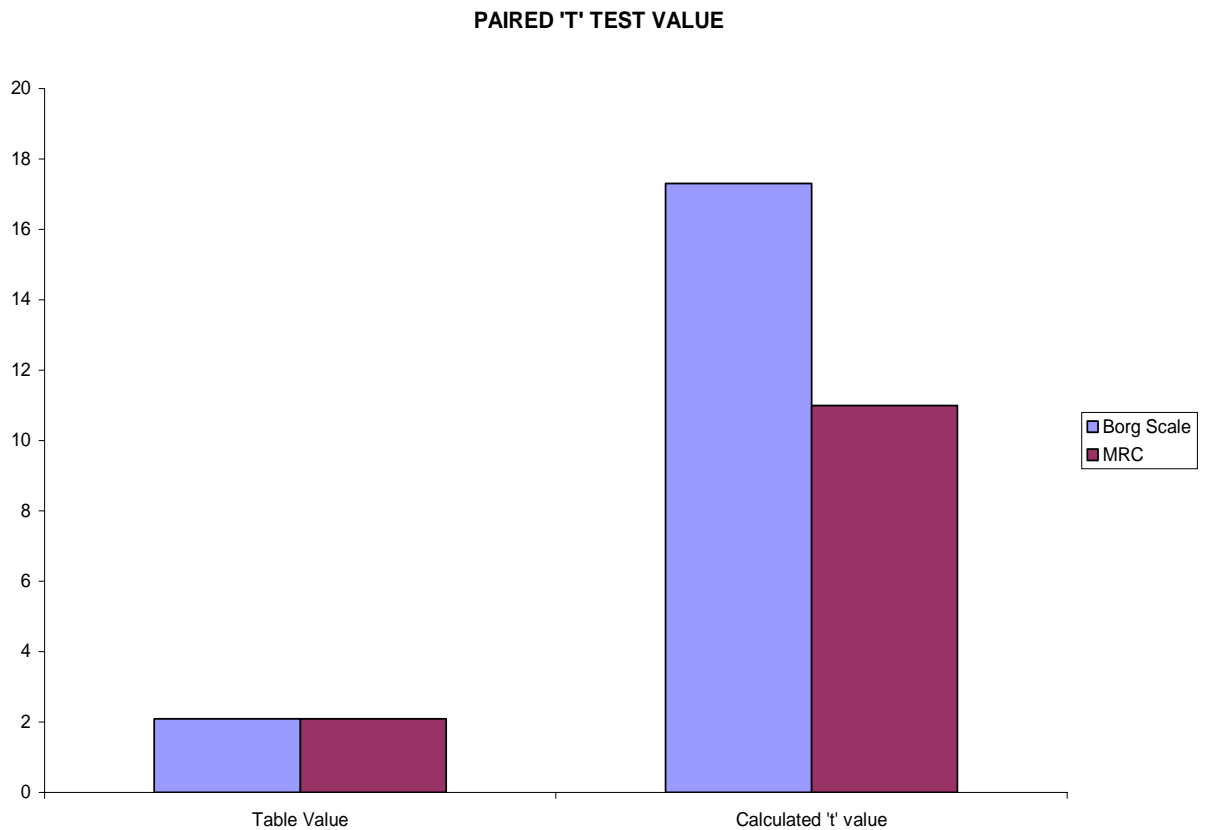


### 4.3. Paired T Test

Test	Table value	Calculated 't' value	Results
Borg scale	2.09	17.3	Significant
MRC	2.09	11.0	Significant

Table value 5% level of significance 19 degree of freedom

The above table shows there is significant different between the pre and post values.



## **CHAPTER - V**

### **RESULTS OF DISCUSSION**

By comparing the mean difference obtained, we would notice that there is an improvement in the pattern of breathing in both the test, indicating that there is an improvement in the breathing pattern after the 6 weeks manipulation program. The results of paired 't' test shows that there is a significant difference in the pre and post test values, indicating the effectiveness of the given manipulation.

#### **5.2. DISCUSSION**

The study conducted on 20 individuals selected from the patient of various hospital is Erode district, who all are asthma patient by between 15 to 40 years, all the subjects underwent the pre assessment of both scale and pulmonary assessment of the individuals also were taken.

All the subjects were informed about the visceral manipulation procedure, the procedure for manipulation have been described in details in the methodology. The duration of programme was 6 weeks at the end of the study, the post test measurement were recorded and was statistically analysed.

The measurement used in statistical analysis was paired 't' test to find out the difference between pre and post test. The results obtained had clearly indicated there is an improvement in the pattern of the asthma patient after manipulation programme.

### **5.3. LIMITATION OF THE STUDY**

The study was conducted on small sample size

- Environment factors might also have influenced the study
- The study was conducted over a small period
- The study was conducted on asthma patient alone

### **5.4. RECOMMENDATION**

- The study must be extended to a large number of subjects over a longer period of time
- The study can be extended to the obstructive disease of pulmonary system also
- Pattern of breathing is important for all the patient have the pulmonary disease, so the patient should concentrate to the visceral manipulation

## **CHAPTER – VI**

### **CONCLUSION**

From the study is concluded that the efficacy of the pattern of breathing in asthmatic patient improved by visceral manipulation.

So all the asthmatic patient may under go the visceral manipulation will improve the pattern of breathing and also improve the functional capacity of the daily living of peoples who work under various environment.

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## **APPENDIX – I**

### **PULMONARY ASSESSMENT**

#### **SUBJECTIVE ASSESSMENT**

Name : OP No:

Age : Date :

Gender :

Occupation :

Chief complaints :

Shortness of breath :

Cough:

Wheeze :

Chest pain :

Sputum :

Dizziness :

Past medical history :

Present medical history :

Personal history :

Associated problems :

Allergic to irritants

Smoking duration :

No. of Cigars per day :

Alcohol :

Diet :

Other habits :

## **OBJECTIVE ASSESSMENT**

### **ON OBSERVATION**

Built :

Posture :

Use of accessory muscles :

Chest wall deformities

Restlessness

Sputum	Quantity	Colour	Consistency

Cough	Type	Frequency

### **ON PALPATION**

Tracheal descent :

Thoracic expansion :

### **ON EXAMINATION**

Auscultation :

Air entry :

Breathe sound :

Added sound :

Heart sound :

Peripheral pulses :

Percussion note :

Vocal fremitus :

**Activities of daily living**

## **APPENDIX – II**

### **MODIFIED BORG DYSPNOEA SCALE**

Rate of perceived exertion (Borg Scale)

0	-	Nothing at all
0.5	-	Very very weak
1	-	Very weak
2	-	Weak
3	-	Moderate
4	-	Some what strong
5	-	Strong
6	-	
7	-	Very strong
8	-	
9	-	
10	-	Very very strong

## **APPENDIX – III**

### **MEDICAL RESEARCH COUNCIL DYSPNEA SCALE**

#### **Grade – 1**

Breathlessness with strenuous exercise

#### **Grade - 2**

Short of breath when hurrying on the level (or) waling up a slight hill

#### **Grade - 3**

Walks slower than people of the same age on the level or stops for breath while walking at own pace on the level.

#### **Grade - 4**

Stops fro breath after walking 100 yards

#### **Grade – 5**

Too breathless to leave the house or breathless when dressing.

## APPENDIX – IV

### BORG DYSPNOEA SCALE

Patient No.	Pre Value	Post Value
1	5	3
2	4	2
3	6	3
4	5	2
5	7	4
6	6	4
7	5	3
8	5	2
9	5	1
10	4	1
11	6	4
12	6	2
13	7	4
14	7	3
15	5	2
16	6	2
17	4	1
18	4	2
19	7	3
20	5	2

## MRC SCALE

Patient No.	Pre Value	Post Value
1	5	3
2	4	2
3	4	1
4	4	2
5	3	1
6	5	2
7	5	3
8	5	1
9	4	1
10	4	2
11	4	1
12	5	1
13	5	2
14	3	1
15	3	2
16	4	1
17	5	2
18	4	2
19	3	1
20	4	3

**APPENDIX – V**  
**INFORMED CONSENT**

This is to certify that I, ..... totally agree to be a subject for the project work “ **EFFICACY OF VISCERAL MANIPULATION ON ABNORMAL PATTERN OF BREAKING IN ASTHMATIC PATIENTS**” and I assure that I will not initiate or undergo any other treatment or concurrent exercise programme during the course of this study.

I own all the responsibilities of my health condition, if any untoward development happened during the courses of this study.

Date :

**Signature of the Patient**

Date :

**Signature of the Candidate**